

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,254,188 B2
APPLICATION NO. : 10/737323
DATED : August 7, 2007
INVENTOR(S) : Cannon et al.

Page 1 of 3

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Please replace the paragraph beginning at col. 2, line 11 with the following paragraph:

The constellation has point values with two points of differing amplitude and having a zero reference phase, and two other points having corresponding amplitude to the first two points with a 180 degree reference phase. The remaining four points are located symmetrically above and below the lower amplitude points of the zero reference phase and 180 degree reference phase set. The points may have complex locations substantially equal to $(K/2, 0)$, $(3K/2, 0)$, $(K/2, K)$, $(-K/2, K)$, $(-K/2, 0)$, $(-3K/2, 0)$, $(-K/2, -K)$ and $(K/2, -K)$, where K is an arbitrary amplitude reference and further including all phase rotations of the constellation.

Please replace the paragraph beginning at col. 7, line 44 with the following paragraph:

The Snowflake constellation may be described as 8 points on an equally spaced rectangular grid such that 4 points are in a horizontal line. To these are added 2 pairs of additional points equally spaced above and below the center 2 points in the horizontal line. Although we define this constellation (and subsequent mappings, metrics and phase detector) in terms of horizontal and vertical spacing, the performance is independent of any fixed rotation, and

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therefore rotations of the constellation represent equivalent modulation schemes. The depicted rotation includes the points having complex locations substantially equal to $(K/2, 0)$, $(3K/2, 0)$, $(K/2, K)$, $(-K/2, K)$, $(-K/2, 0)$, $(-3K/2, 0)$, $(-K/2, -K)$ and $(K/2, -K)$, where K is an arbitrary amplitude reference representing the spacing between the points on the I axis (horizontal axis) of the constellation diagram.

Variations from the set of points described above will tend to reduce performance, but there may be advantages in reducing the amplitudes of the $(\pm 3K/2, 0)$ points to reduce the peak power level, and it should be understood that minor variations in the phase or amplitude of the points are equivalent values contemplated by the present invention.

Please replace claim 8 with the following language for claim 8:

8. The receiver of claim 1, wherein a grouping associated with a first bit of said three-bit symbol decode divides said constellation between a first subgroup including said first, second, fifth and sixth points and a second subgroup comprising all points that are not members of said first subgroup, wherein a grouping associated with a second bit of said three-bit symbol decode divides said constellation between a third subgroup including said first, third, sixth and

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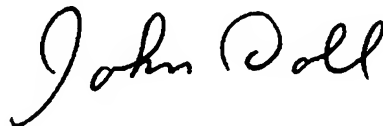
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It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

eighth points and a fourth subgroup comprising all points that are not members of said third subgroup, and wherein a grouping associated with a third bit of said three-bit symbol decode divides said constellation between a fifth subgroup including said first, third, fifth and seventh points and a sixth subgroup comprising all points that are not members of said fifth subgroup, and wherein is said log-likelihood.

Signed and Sealed this

Twenty-sixth Day of May, 2009



JOHN DOLL
Acting Director of the United States Patent and Trademark Office